

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)



(PCT Article 36 and Rule 70)

REC'D 03 OCT 2005

PCT

Applicant's or agent's file reference pfs	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/KR2004/000949	International filing date(day/month/year) 24 APRIL 2004 (24.04.2004)	Priority date (day/month/year) 25 APRIL 2003 (25.04.2003)	
International Patent Classification (IPC) or national classification and IPC IPC7 F16L 21/08			
Applicant KIM, Sukyoon			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>12</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____ containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>	
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>	

Date of submission of the demand 01 DECEMBER 2004 (01.12.2004)	Date of completion of this report 12 AUGUST 2005 (12.08.2005)
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer LEE, Moon Wook Telephone No. 82-42-481-5420 

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2004/000949

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☒ This report is based on translations from the original language into the following language English, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☒ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
 pages 1, 3 - 7 as originally filed/furnished
 pages* 2, 2/1 - 2/3, received by this Authority on 27 Dec. 2004
 pages* _____ received by this Authority on _____
- ☒ the claims:
 pages _____ as originally filed/furnished
 pages* _____ as amended (together with any statement) under Article 19
 pages* 8 - 11 received by this Authority on 27 Dec. 2004
 pages* _____ received by this Authority on _____
- ☒ the drawings:
 pages _____ as originally filed/furnished
 pages* 1/3 - 3/3 received by this Authority on 27 Dec. 2004
 pages* _____ received by this Authority on _____
- ☐ the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2004/000949

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1 - 9	YES
	Claims		NO
Inventive step (IS)	Claims	7 - 9	YES
	Claims	1 - 6	NO
Industrial applicability (IA)	Claims	1 - 9	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: JP 51-151230 U

D2: JP 2001-21076 A

1. Novelty

The subject matter of claims 1-9 is considered to be novel under PCT Article 33(2).

2. Inventive Step

D1 relates to an apparatus for preventing a pipe from coming off by inserting a clamping piece (4) installed in a tapered pressing wheel (7) into the incline of the pressing wheel by a rotation of a bolt.

D2 relates to a pipe joint, wherein a protruded stopper (3d) is installed at a center of the inner portion of a body (3), and a flange is installed at the outer surface thereof. By bolting said flange to the flange (4) of a pressing wheel (4), a lock ring installed in the inside of the taper-shaped pressing wheel can play a role of wedge.

2.1 Lack of Inventive Step

The subject matter of claims 1-6 is considered to lack an inventive step under PCT Article 33(3) for the following reasons:

- Claim 1

The invention claimed in claim 1 relates to a fixing system for a pipe, comprising: a body (2) which has a stopping part (21) by which insertion of the pipe into the body (20) is stopped; a tapered part (22) which is formed to have an inner hollow portion and a diameter gradually narrowing toward an upper end of the body (20); an inlet (23) which is formed by bending an upper end of the tapered part (22) in an "L" shape to receive the pipe (10) and provided with at least three bolt holes (26); fixing chips (24), each having at least one bolt hole (26); and bolts (23) which are inserted through the bolt holes (26, 26a).

(Continued in Supplemental Box.)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Box V:

D1 discloses corresponding technical features to those of claim 1, or the body (20) into which a pipe is inserted, the stopping part (21), the tapered part (22), the L-shaped inlet (23), the fixing chips (24), and the bolts (23).

Claim 1 differs from D1 in that the present invention is a fixing system for a pipe, and that the stopping part for stopping the insertion of the pipe into the body is positioned in the inside of the lower portion of the body.

With respect to the first difference of said two differences between claim 1 and D1, it would be obvious to a person skilled in the art to foresee the use of the technical feature of D1 for fixing a pipe-shaped part from the fact that the invention of D1 is to prevent a pipe from coming off.

In addition, the installation position of the stopping part for preventing the insertion of the pipe into the body is merely one of several possibilities from which a person skilled in the art would select in accordance with circumstances.

As stated above, said difference does not lead the present invention to involve an inventive step.

– Claims 2, 3

The function and shape of the fixing chip according to claims 2 and 3 are the same as those of clamping piece (4) according to D1.

– Claims 4, 6

Claim 4 limits the numbers of the fixing chip and bolt according to claim 1. Said limitations do not result in an expected effect. Therefore, the subject matter of claim 4 is considered to lack an inventive step.

– Claim 5

Claim 5 defines the formation of a threaded portion in the inside of the fixing chip according to claim 1 in the opposite direction to the insertion direction of the pipe. The formation of a threaded portion in a fixing chip is already disclosed in D1, and the formation of a threaded portion in an opposite direction to the insertion direction of a pipe is necessary to prevent the pipe from moving.

2.2 Presence of Inventive Step

The subject matter of claims 7–9 is considered to involve an inventive step under PCT Article 33(3) for the following reasons:

– Claim 7

Claim 7 adds a fixing plate to the lower portion of the body according to claim 1. Said fixing plate is not disclosed in D1 and D2, nor is it obvious.

(Continued on the next page.)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2004/000949

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

previous page.

– Claim 8

Claim 8 relates to a pipe connecting system wherein two pipe fixing systems of claim 1 are integrally connected to each other.

The combination of the features of D1–D2 would result in the features similar to those of claim 8, and is obvious. However, though the combination of the documents is obvious and would result in a pipe connecting system having similar features to those of the present invention, it would not be obvious for a person skilled in the art to derive the claimed connector structure which connects pipes only by a fastening force of fixing chips from said combination.

– Claim 9

Claim 9 is a dependent claim which refers to claim 8.

3. Industrial Applicability

The subject matter of claims 1–9 is considered to be industrially applicable under PCT Article 33(4).

lots of time and manpower to install the pipe structure and it is completed as workers must work in reverse order to disassemble it.

Therefore, installation, repair and maintenance, and dismantlement of a sign board or a street light on the road require an improved fixing method or system, which allows for rapid work. Moreover, also in installation and maintenance of large-scaled waterworks or gas pipes, people demand a rapidly and securely fixing system.

The invention disclosed in Japanese Pat. 2001-21076 has a structure that applies a wedge action to a pipe, like the pipe fixing system of the present invention, but is problematic in that high manufacturing cost is incurred because the invention has a complicated structure including a pressure wheel, two flanges, a locking ring and an incore, the appearance thereof is not pleasant because the bolts and flanges excessively project to the outside thereof unlike the present invention, and damage may occur thereto during maintenance, installation and transportation.

Disclose of Invention

Accordingly, the present invention has been made in view of the above problems, and it is an object of the present invention to provide a pipe fixing system, which can easily fix or connect and remove a pipe structure without welding or other auxiliary work.

Another object of the present invention is to provide a pipe fixing system, which is economical in installation and maintenance as rapidly fix and remove the pipe structure.

A further object of the present invention is to provide a

more firm pipe fixing system and a pipe structure connecting system.

In accordance with an aspect of the present invention, the above and other objects can be accomplished by the provision of a pipe fixing system, the system comprising a body (20) having a stopping part (21) formed on the lower portion of the inside thereof to stop the pipe (10) inserted into the body (20), a tapered part (22) formed to have an inner hollow portion and a diameter gradually narrowing toward an upper end of the body (20), and an inlet (23) formed by bending an upper end of the tapered part (22) in an "L" shape to receive the pipe (10) and provided with at least three bolt holes (26); fixing chips (24) mounted in the inner hollow portion of the tapered part (22) of the body (20), and each provided with at least one bolt hole (26a) formed vertically therein; and bolts (25) inserted through the bolt holes (26) of the inlet (23) and the bolt holes (26a) of the fixing chips (24).

Preferably, the fixing chips (24) function as wedges in such a manner that the fixing chips (24) are interposed between the tapered part (22) of the body (20) and the pipe (10) and are lifted up when the bolts (25) are tightened.

Preferably, the fixing chips (24) are formed in such a manner that the upper portions thereof are narrow and the lower portions thereof are wide so as to correspond to an interior of a shape of the tapered part (22).

Preferably, the number of the fixing chips (24) is three.

Preferably, inside surfaces of the fixing chips (24) in tight contact with the pipe (10) are each provided with a threaded portion (30) to maximize frictional force, so that

the pipe (10) is not removed in a direction opposite to an insertion direction.

Preferably, two bolts are inserted through each of the fixing chips (24) to prevent instability, which may occur during bolt tightening, when the fixing chips (24) are long.

Preferably, the body (20) further has a fixing plate (27) that is formed around a lower end of an outside of the body (20) to be fastened to concrete using fastening means such as bolts.

In accordance with another aspect of the present invention, there is a pipe connecting system, comprising: at least two pipe fixing systems, each of the pipe fixing systems comprising: a body (20) having a stopping part (21) formed on the lower portion of the inside thereof to stop the pipe (10) inserted into the body (20), a tapered part (22) adapted to have an inner hollow portion and a diameter gradually narrowing toward an upper end of the body (20), and an inlet (23) formed by bending an upper end of the tapered part (22) in an "L" shape to receive the pipe (10) and provided with at least three bolt holes (26); fixing chips (24) mounted in the inner hollow portion of the tapered part (22) of the body (20), and each provided with at least one bolt hole (26a) formed vertically therein; and bolts (25) inserted through the bolt holes (26) of the inlet (23) and the bolt holes (26a) of the fixing chips (24); wherein the two pipe fixing systems are integrally connected to each other and the inlets (23) of the pipe fixing systems are arranged opposite to each other.

Preferable, The pipe connecting system further comprise rubber packings (28) that are mounted in insides of lower ends of the tapered parts (22) of the two pipe fixing systems to maintain a seal.

Brief Description of Drawings

Further objects and advantage of the invention can be more fully understood from following detailed description taken in conjunction with the accompanying drawings in which:

5 FIG. 1 is a sectional view of a pipe fixing system according to a preferred embodiment of the present invention;

FIG. 2 is a view, seen from an inlet side showing a pipe

10

15

20

What is claimed is:

1.(amended) A pipe fixing system for accommodating and fixing a pipe, comprising:

5 a body (20) having a stopping part (21) formed on the lower portion of the inside thereof to stop the pipe (10) inserted into the body (20), a tapered part (22) formed to have an inner hollow portion and a diameter gradually narrowing toward an upper end of the body (20), and an inlet
10 (23) formed by bending an upper end of the tapered part (22) in an "L" shape to receive the pipe (10) and provided with at least three bolt holes (26);

fixing chips (24) mounted in the inner hollow portion of the tapered part (22) of the body (20), and each provided with
15 at least one bolt hole (26a) formed vertically therein; and

bolts (25) inserted through the bolt holes (26) of the inlet (23) and the bolt holes (26a) of the fixing chips (24).

2. (amended) The pipe fixing system according to claim 1,
20 wherein the fixing chips (24) function as wedges in such a manner that the fixing chips (24) are interposed between the tapered part (22) of the body (20) and the pipe (10) and are lifted up when the bolts (25) are tightened.

25 3. (amended) The pipe fixing system according to claim 1, wherein the fixing chips (24) are formed in such a manner that the upper portions thereof are narrow and the lower portions thereof are wide so as to correspond to an interior of a shape of the tapered part (22).

4. (amended) The pipe fixing system according to claim 1, wherein the number of the fixing chips (24) is three.

5. (added) The pipe fixing system according to claim 1, wherein inside surfaces of the fixing chips (24) in tight contact with the pipe (10) are each provided with a threaded portion (30) to maximize frictional force, so that the pipe (10) is not removed in a direction opposite to an insertion direction.

6. (added) The pipe fixing system according to claim 1, wherein two bolts are inserted through each of the fixing chips (24) to prevent instability, which may occur during bolt tightening, when the fixing chips (24) are long.

7. (added) The pipe fixing system according to claim 1, wherein the body (20) further has a fixing plate (27) that is formed around a lower end of an outside of the body (20) to be fastened to concrete using fastening means such as bolts.

8. (added) A pipe connecting system, comprising:

at least two pipe fixing systems, each of the pipe fixing systems comprising:

a body (20) having a stopping part (21) formed on the lower portion of the inside thereof to stop the pipe (10) inserted into the body (20), a tapered part (22) adapted to have an inner hollow portion and a diameter gradually narrowing toward an upper end of the body (20), and an inlet (23) formed by bending an upper end of the tapered part (22) in an "L" shape to receive the pipe (10) and provided with at

least three bolt holes (26);

fixing chips (24) mounted in the inner hollow portion of the tapered part (22) of the body (20), and each provided with at least one bolt hole (26a) formed vertically therein; and

5 bolts (25) inserted through the bolt holes (26) of the inlet (23) and the bolt holes (26a) of the fixing chips (24); wherein the two pipe fixing systems are integrally connected to each other and the inlets (23) of the pipe fixing systems are arranged opposite to each other.

10 9. (added) The pipe connecting system according to claim 8, further comprising rubber packings (28) that are mounted in insides of lower ends of the tapered parts (22) of the two pipe fixing systems to maintain a seal.

10
<Deleted>

PCT/KR 2004/0 0 0 949
IPEA/KR 2 7. 1 2. 2004.

AMENDED SHEET (ART. 34)

ABSTRACT

The present invention discloses a pipe fixing system, which can easily and rapidly fix and remove a pipe. The pipe fixing system includes: a body (20) having a stopping part (21) formed on the lower portion of the inside thereof to stop the pipe (10) inserted into the body (20), a tapered part (22) formed to have an inner hollow portion and a diameter gradually narrowing toward an upper end of the body (20), and an inlet (23) formed by bending an upper end of the tapered part (22) in an "L" shape to receive the pipe (10) and provided with at least three bolt holes (26); fixing chips (24) mounted in the inner hollow portion of the tapered part (22) of the body (20), and each provided with at least one bolt hole (26a) formed vertically therein; and bolts (25) inserted through the bolt holes (26) of the inlet (23) and the bolt holes (26a) of the fixing chips (24).

AMENDED SHEET (ART. 34)

FIG. 1

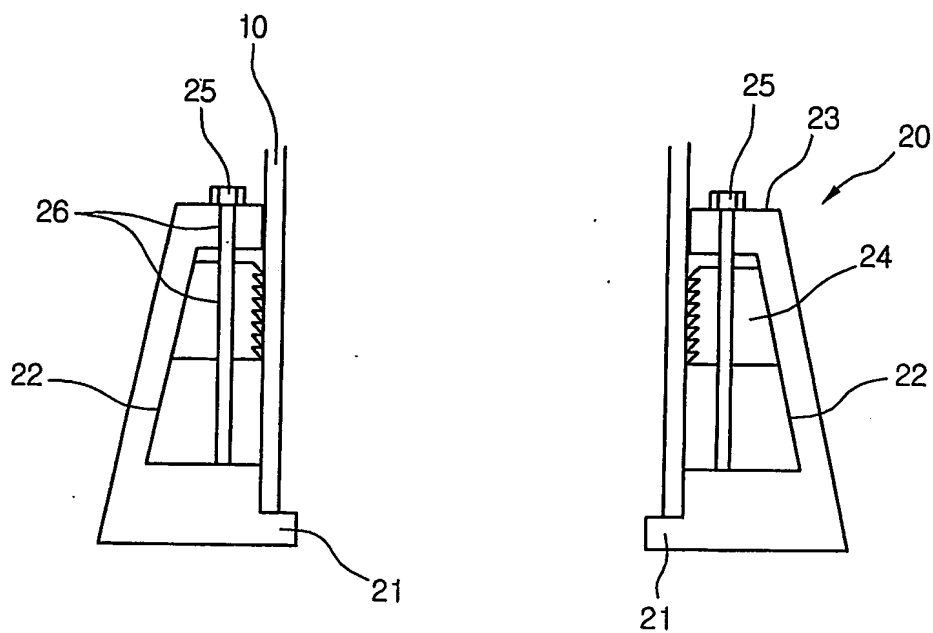


FIG. 2

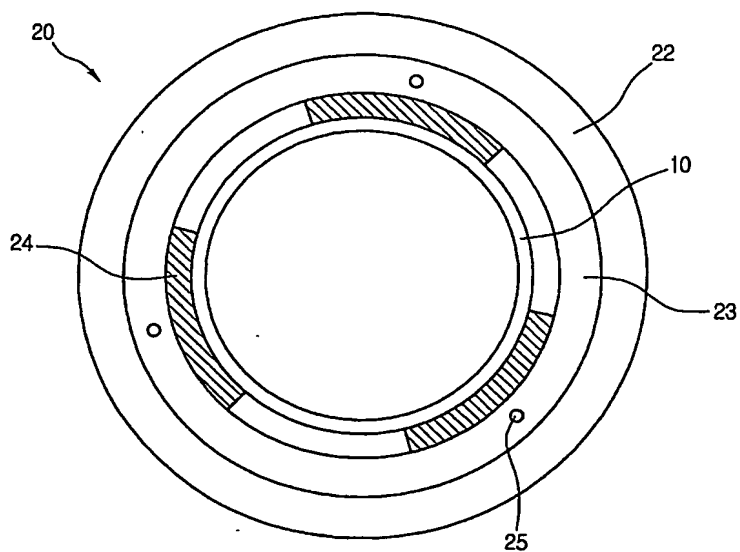


FIG. 3

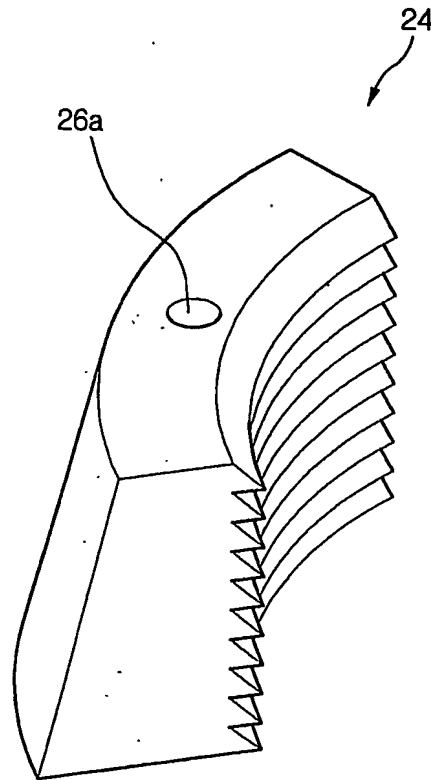
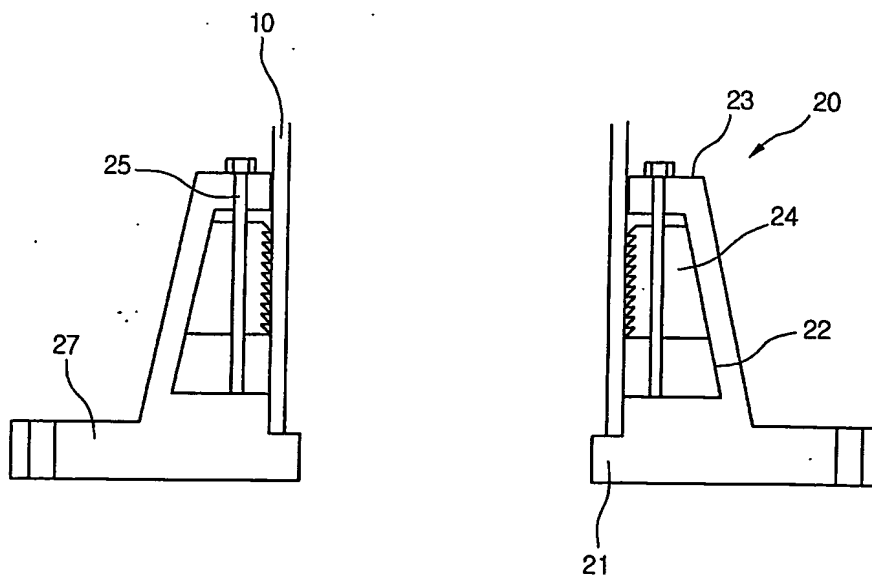


FIG. 4



AMENDED SHEET (ART. 34)

FIG. 5

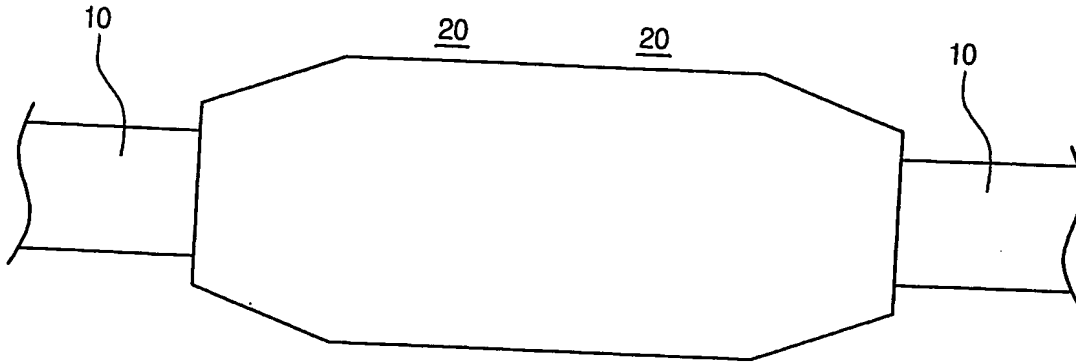


FIG. 6

